

Problem Set 4  
Answers

**Question 1:**

1.1) Actually, (b) and (d) are right. In both cases the supply of goods would increase for every price level. (a) moves the AD; while c moves the AS upward. A note on grading: because of the typo in answer e (a and d, instead of b and d), everybody gets full credit on this problem.

1.2) (c) is right. When  $P$  increases the real money supply ( $M/P$ ) decreases shifting the LM curve up. (a) and (b) are clearly wrong; (d) is related to the AS, not the AD.

1.3) (d) is right. Both (a) and (b) increase expected future wages. (c) increases financial wealth, not human wealth.

1.4) (d) is right. Permanent changes have a larger effect on expected lifetime income. (a)-(c) are all temporary effects.

**Question 2:**

a)

$$Y = C + (X - Q) \Rightarrow Y = \frac{x_0 - (x_1 + q_1)P - c_1(1 - q_0)i}{1 - c_0(1 - q_0)}$$

b) Let the fixed supply of nominal money  $M$  equal  $\bar{M}$ . Then

$$\frac{\bar{M}}{P} = m_0Y - m_1i \Rightarrow Y = \frac{(\bar{M}/P) + m_1i}{m_0}$$

c) Solving for  $i$  in the LM relation, plugging it into the IS curve, and solving for  $Y$ , we get

$$Y = \frac{x_0 - (x_1 + q_1)P + \frac{c_1(1 - q_0)}{m_1} \left( \frac{\bar{M}}{P} \right)}{1 - c_0(1 - q_0) + c_1(1 - q_0) \frac{m_0}{m_1}}$$

d) AS shifts to the right. Output increases, the price level decreases, the effect on  $i$  is ambiguous.

e) AS shifts to the left. Output decreases, the price level increases, the effect on  $i$  is ambiguous.

f) AD shifts to the right. Output increases, the price level increases. The IS shifts to the right due to higher consumption, but the consequent increase in the price level shifts the LM up and partly shifts the IS back. The interest rate increases.

**Question 3:**

a)

$$C = \frac{K + W_1 + W_2}{2}$$
$$S = K + W_1 - C = \frac{K + W_1 - W_2}{2}$$

b) The temporary increase in wages is spread over the two periods and, as a result, savings increase.

$$\Delta C = \frac{\Delta W}{2}$$
$$\Delta S = \frac{\Delta W}{2}$$

c) Since the increase in wages is permanent, savings remain unchanged.

$$\Delta C = \Delta W$$
$$\Delta S = 0$$

d) If wages are expected to increase in the future, consumption increases today and savings fall.

$$\Delta C = \frac{\Delta W}{2}$$
$$\Delta S = -\frac{\Delta W}{2}$$

e) If financial wealth falls, consumption falls in both periods.

$$\Delta C = -\frac{\Delta K}{2}$$
$$\Delta S = -\frac{\Delta K}{2}$$